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AMSAT NEWS SERVICE
ANS-018

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-018 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 018.01
 >From AMSAT HQ KENSINGTON, MD.
DATE January 18, 2015
To All RADIO AMATEURS
BID: $ANS-018.01

Fox-1A Launch Date

AMSAT has received a launch date for the Fox-1A satellite. Fox-1A will be launched on August 27, 2015 on a United Launch Alliance Atlas 5 rocket from Vandenberg Air Force Base, California on the NROL-55 flight for the U.S. National Reconnaissance Office. The launch time has not been announced.

Fox-1A Operating Frequencies include:

Uplink 435.180 MHz FM
Downlink 145.980 MHz FM

The AMSAT Fox series of satellites will include additional opportunities for launch during 2015-2016:

+ Fox-1B will fly with the Vanderbilt University radiation experiments expected in 2016.

+ Fox-1C* will launch on Spaceflight's maiden mission of the SHERPA multi-cubesat deployer during the 3rd quarter of 2015.

+ Fox-1D is a flight spare for Fox-1C. If not needed as a spare it will become available to launch on any open launch slot which becomes available and be submitted in a Cubesat Launch Initiative (CSLI) proposal in 2015.

+ Fox-1E is built as a flight spare for Fox-1B but has been included in a student science proposal as part of the November, 2014 CSLI for an ELaNa flight slot. If selected the Fox-1B spare will fly as Fox-1E.

* The flight for Fox-1C has been purchased by AMSAT. It is not funded by the Cubesat Launch Initiative ELaNa program. Fund raising for the $125,000 launch costs for Fox-1C are underway. We have commissioned a unique challenge coin for donors who have contributed at the $100 level or higher. This challenge coin is shaped as an isometric view of a Fox-1 CubeSat, complete with details such as the stowed UHF antenna, solar cells, and camera lens viewport. Struck in 3mm thick brass, plated with antique silver, and finished in bright enamel, the coin is scaled to be approximately 1:4 scale, or 1 inch along each of the six sides. The reverse has the AMSAT Fox logo.

You may donate at:

+ The AMSAT web site
http://www.amsat.org

+ AMSAT's page on the FundRazr crowdsourcing web site
http://fnd.us/c/6pz92/sh/561Zd

+ Or Call Martha at the AMSAT Office (888) 322-6728

[ANS thanks the Fox-1 Team for the above information]

Most Current ISS Keps

AMSAT has been working on updating the keps for the ISS in a more timely manner. Joe Fitzgerald has confirmed that the AMSAT keps download site is now updated with the latest ISS data.

Here is his comment:

http://www.amsat.org/amsat/ftp/keps/current/nasabare.txt
is updated daily at 11:18 UTC with TLE's from Spaceflight.nasa.gov
http://tinyurl.com/ANS018-ISS-TRAJECTORY-DATA

According to Joe Fitzgerald, "This is a very significant improvement

and should be very helpful for this who need accurate keps for school contacts and other ISS activities."

The bulletins remain on a weekly schedule with data from spacetrack.org The ARISS team suggests this information should be share accordingly.

[ANS Thanks Joe Fitzgerald, KM1P, and ARISS for the above information.]

NASA Cubesat Simulators Intern Opportunities Summer 2015

CubeSat Simulator Intern Opportunities in Greenbelt, MD USA
The NASA Goddard Space Flight Center is offering an internship position for the Summer 2015 semester. Applications are being taken on the NASA One Stop Shopping Initiative (OSSI) recruiting web site.

To search, go to:
https://intern.nasa.gov --> Student Opportunities --> Internships --> and you are brought to a page with tabs. The opening tab HOME describes the main ground rules and schedule. Click the SEARCH OPPORTUNITIES tab and scroll to the very bottom. Enter Keyword in the box: "cubesat" without the quotes, then click the Search and then you will get a growing list of opportunities including the Cubesat Simulator, Cubesat Groundstation, and PICetSat Module & PCB Development. This brings the student to this page:

https://intern.nasa.gov/ossi/web/public/guest/searchOpps/

Again, the Internship Titles are:
o CubeSat Simulator Upgrade Plus
o CubeSat Ground Station Development
o PICetSat Module & PCB Development

The objective of this Opportunity is to allow a university level student to rework, repair and improve a prototype "1-Unit" CubeSat simulator/model on loan from AMSAT and then to share his or her experiences as a result. The model used in this Opportunity is similar to that described in The AMSAT Journal article "Education With a Satellite Simulator: ETP CubeSat Simulator," by Mr. Mark Spencer, ARRL Education and Technology Program Coordinator, Part 1 in the the September/October 2009 issue and Part 2 in the November/ December 2009 issue.

Back copies are available at:
http://www.arrl.org/files/file/ETP/CubeSat/CubeSat-Pt1-SepOct09.pdfhttp://www.arrl.org/files/file/ETP/CubeSat/CubeSat-Pt2-NovDec09.pdf

A course of study in engineering is required. Electrical/Electronics Engineering (EE) or Electrical and Computer Engineering (ECE) for university students in their junior class or higher. Experience in hardware is also required.

Open to U.S. citizens.

The immediate skills required of the intern are to be a well-rounded individual, and to have an excellent knowledge of and experience with Windows operating systems, Microsoft Office (especially in using spreadsheets), electrical and electronic circuits (theory and

practice), microcontrollers, interfacing, and the use of basic laboratory test equipment and procedures.

Familiarity with the CubeSat community is important.

A proficiency in either C++ or a similar language for microcontrollers and the desire to learn a new one is necessary. A basic understanding of data acquisition, signal processing, or control is required.

Hands-on experience in building something, repairing or upgrading PCs or other electronic gear, or just getting stuff to work is required. Mechanical and electrical construction skills will be used.

Experience in RF or wireless technology (anywhere between 3 and 2400 MHz) is very important. Holding or obtaining an Amateur Radio license from the FCC and practical radio experience is a distinct advantage.

A good attitude, an exceptional willingness to learn and to contribute as a team player are essential qualities. Likewise, excellent communicator skills (verbal, writing and definitely e-mail), reliability, punctuality, having a self-starter work ethic and the ability & desire to work independently for long periods are required.

You may ask questions regarding the tasks and skill requirements with the mentor in advance (Mr. Pat Kilroy, Code 568, Patrick.L.Kilroy(a)nasa.gov) and telephone interviews will be available.

The student application instructions provide a deadline of March 1 to apply, but mentors will start evaluating applications as soon as next week. The word to the wise is to get one's application in ASAP and certainly within the next three weeks!

Applications must be made via the OSSI web. Please Be sure to enclose your callsign.

https://intern.nasa.gov/ossi/web/public/main/index.cfm?sola rAction=view&subAction=content&contentCode=HOME_PAGE_INTERNSHIPS

[ANS thanks NASA and Pat, N8PK for the above information]

OGMS-SA CubeSat to provide FM Transponder

The AESP-14 is a 1U CubeSat developed by undergraduate and graduate engineering students at the Technology Institute of Aeronautics (ITA) in Brazil. The satellite’s primary mission is to test the various subsystems in the space environment.

The satellite was sent to the International Space Station (ISS) on January 10 by the SpaceX Falcon 9 launch and it is now awaiting release into space by the JEM orbital deployer (J-SSOD) at the Kibo Japanese module.

The satellite has an amateur radio experiment developed by the Americana Amateur Radio Club (CRAM). The experiment consists of the random transmission of 100 sequences of ASCII characters prefixed with the “CRAM” word that will used as part of a contest among

receiving stations. The first 10 amateur radio stations that complete receiving the 100 sequences will be awarded a commemorative diploma. A web site is being developed to collect the sequences. The site address will be announced shortly.

AESP-14 will transmit with an RF power of 500 mW on 437.600 MHz using the 9600 bps G3RUH modulation (GFSK) and AX.25 UI framing. Radio amateurs are encouraged to send any telemetry frames received back to the team. Telemetry format and more information will be published in the project web site
http://www.aer.ita.br/~aesp14

An update bulletin will be released as soon as the final launch date is announced by NASA.

[ANS thanks AMSAT-UK and Edson, PY2SDR for the above information]

OGMS-SA CubeSat to provide FM Transponder

OGMS-SA is a 3U CubeSat being developed by students at the Paris-Est Creteil University as part of the QB50 constellation.
The purposes of this CubeSat include upper atmosphere science; radio communication experiments; technology demonstrator; education, training and outreach.
Additionally it will provide an FM voice transponder for amateur use. Planning is to use VHF uplink and UHF downlink with 9k6 FX25 GMSK modulation. A downlink of 437.545 MHz has been coordinated.

OGMS-SA CubeSat
http://www.esep.pro/-CubeSat-OGMS-SA-En-construction-.html

Source IARU Satellite Frequency Coordination
http://www.amsat.org.uk/iaru

QB50 CubeSat Launch Contract Signed
http://amsat-uk.org/2014/01/28/qb50-cubesat-launch-contract-signed /

[ANS thanks AMSAT-UK for the above information]

Call for Speakers and Papers for the 41st Eastern VHF/UHF/Microwave Conference

Talks and papers, both long and short, are needed for the 41st Eastern VHF/UHF/Microwave Conference on April 17-19 2015 in Manchester, CT.

Please tell us about what you have been working on: Operating, contesting, construction, homebrewing, microwaves.

Please let Paul, W1GHZ, (w1ghz(a)arrl.net) know if you are considering a presentation or paper. A commitment by the end of February would be appreciated, with a deadline of 18 March.

The conference organizers are also planning another Friday afternoon workshop. One suggestion is for an Antenna Modeling workshop. We could even do two simultaneous workshops - one for Antenna Modeling and something else for those who aren't computer-oriented. Any suggestions, please.

Find additional details at
http://www.newsvhf.com/vhfconf.html

[ANS thanks Paul, W1GHZ for the above information]

Dick Flagg, AH6NM, honored as Yasme Excellence Award Winner

The Yasme Foundation Board of Directors has announced the recipients of several awards. The Foundation named four individuals to receive the Yasme Excellence Award for 2014.

Honored as Yasme Excellence Award winners were:

* Kimo Chun, KH7U, for 20 years of behind-the-scenes support to DXpeditions to Pacific entities -- including logistics, organization, equipment, local contacts, and planning.

* Dick Flagg, AH6NM, for his years of working with the Amateur Radio on the International Space Station (ARISS) program and its predecessor Shuttle Amateur Radio EXperiment (SAREX), and for supporting NASA's Radio Jove project, both designed to introduce Amateur Radio to students and the general public.

* Florin Cristian Predescu, YO9CNU, and Lisa Leenders, PA2LS, for their work in organizing and promoting Youngsters on the Air (YOTA) and Amateur Radio youth activities.

The Yasme Excellence Award is presented to individuals who, through their own service, creativity, effort, and dedication, have made a significant contribution to Amateur Radio in technical, operating, or organizational achievement.

http://www.yasme.org/news_release/2014-01-07.pdf

[ANS thanks ARRL Letter and YASME Foundation for the above information]

Video of FUNcube-1 demonstration at IARU-R1 conference

Riaan Greeff ZS4PR has released a video of the demonstration of the FUNcube-1 (AO-73) CubeSat by Graham Shirville G3VZV to delegates at the IARU Region 1 Conference in September 2014.

Mats SM6EAN has posted a brief report on the Swedish Amateur Radio Society (SSA) website about the FUNcube-1 CubeSat presentation at the

IARU Region 1 General Conference in Varna-Albena, Bulgaria.

The following is translated from the original Swedish post.

After the session of the VHF, UHF and Microwave C5 Committee had completed the delegates were given two interesting presentations.

Graham Shirville G3VZV did a poolside demonstration of the FUNcube-1 satellite which was launched in November 2013. Using a computer, FUNcube SDR dongle and a turnstile antenna, held by Kjetil Toresen LA8KV, he received FUNcube-1 and displayed the telemetry data on the computer screen. The satellite's telemetry beacon on 145.935 MHz was also heard using a handheld SSB receiver.

A presentation was also made about Hamnet which is being expanded, especially in Germany. Hamnet is a high-speed multimedia network and it was discussed whether and how IARU Region 1 could support the expansion of this network.

Post by Mats SM6EAN in Swedish
http://www.ssa.se/iaru-reg-1-dag-4/

FUNcube
http://FUNc ube.org.uk/

FUNcube SDR Dongle
http://FUNcubeDongle.com/

FUNcube Yahoo Group
http://amsat-uk.org/funcube/yahoo-group/

Dashboard App – Telemetry Decoder
http://funcube.org.uk/working-documents/funcube-telemetry-dashboa rd/

Data Warehouse – Telemetry Archive
http://warehouse.funcube.org.uk/

Hamnet
http://hamnetdb .net/

IARU Region 1 Conference documents and pictures
http://iarur1con2014.bfra.bg/

[ANS thanks AMSAT-UK for the above information]

AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

* Friday and Saturday, 16-17 January 2015 – Cowtown Hamfest in Forest Hill TX (south of Fort Worth)

* Saturday, 14 February 2015 – presentation for the Greater Los

Angeles Mensa Regional Gathering 2015 in Los Angeles CA (Concourse Hotel at Los Angeles International Airport)

* Friday and Saturday, 20-21 February 2015 – Yuma Hamfest in Yuma AZ (Yuma County Fairgrounds, 32nd Street between Pacific Avenue & Avenue 3E, south of I-8 exit 3)

* Saturday, 7 March 2015 – Irving Amateur Radio Club Hamfest in Irving TX (west of Dallas)

* Friday and Saturday, 13-14 March 2015 – Green Country Hamfest in Claremore OK (northeast of Tulsa)

* Friday and Saturday, 20-21 March 2015 – Acadiana Hamfest in Rayne LA (west of Lafayette)

* Saturday, 21 March 2015 – Weatherford Hamfest in Weatherford TX (west of Dallas/Fort Worth Metroplex)

* Saturday, 21 March 2015 – Scottsdale Amateur Radio Club Hamfest in Scottsdale AZ (northeast of Phoenix, near AZ-101/Princess Drive)

* Saturday, 28 March 2015 – Tucson Spring Hamfest in Tucson AZ (22nd Street, east of Columbus Blvd.)

* Friday, 3 April 2015 – presentation for the Associated Radio Amateurs of Long Beach in Signal Hill CA (Signal Hill Community Center)

* Saturday TBD in early May 2015 – Cochise Amateur Radio Association Hamfest in Sierra Vista AZ

* Saturday TBD in early June 2015 – White Mountain Hamfest in Show Low AZ

* Friday and Saturday, 12-13 June 2015 – HAM-COM in Irving TX (west of Dallas)

* Friday and Saturday, 7-8 August 2015 – Austin Summerfest in Austin TX

[ANS thanks AMSAT-NA for the above information]

ARISS News

+ A direct contact with students at Richmond Heights Middle School and at BioTECH @ Richmond Heights High School in Miami, Florida, USA via W1HQL was successful Thu 2015-01-15 16:09:40 UTC 46 deg. Astronaut Samantha Cristoforetti, IZ0UDF answered 12 questions for an audience of 400 students.

RICHMOND HEIGHTS MIDDLE SCHOOL

Richmond Heights Middle School opened its doors in 1963 in the Richmond Heights community in southwest Miami, Florida. The now 50 year old school, is located in a historic African American Community. An army captain by the name of Frank C. Martin believed it to be a wise investment as well as the right thing to do to establish a

housing development in which Black veterans of WWII could purchase their own home. There are currently 636 students and a teaching staff of 41 faculty members. Along with its exemplary athletics program, full time gifted program, and Cambridge program, Richmond Heights Middle School offers a Zoology Magnet program to the students of Miami Dade County Public Schools. This is an extremely unique magnet program that is one of only three in the nation. The zoology magnet is a result of a partnership with Zoo Miami, the Zoological Society of Florida and Richmond Heights Middle School. It has been in existence since 1988. Students have the unique opportunity to visit the zoo to study the animals within their exhibits while engaging in STEM fields of study.

BIOTECH @ RICHMOND HEIGHTS 9-12 HIGH SCHOOL

BioTECH @ Richmond Heights 9-12 High School is the only Conservation Biology public magnet high school is the United States and boasts three campuses: our educational center at Richmond Campus, our Research Station at Zoo Miami, and our Botanical Outpost at Fairchild Tropical Botanic Garden. BioTECH provides students with a challenging and advanced level math and science curriculum focused on Conservation Biology that exposes them to rigorous STEM coursework as well as research opportunities with practicing scientists in state-of-the-art laboratories. In classes taken on-site at Zoo Miami, students study the human impact on biological diversity, making BioTECH the only school in the country to offer a full research and teaching facility within zoo grounds. Research experiences are offered in collaboration with the local zoo and the local research and botanic garden. BioTECH is currently home to 130 students that travel within the boundaries of a 467 square mile area to attend this unique school. The school opened its doors in August 2014 with a total of 8 faculty members, 7 support staff members, and an arsenal of practicing scientists and conservation educators from Fairchild Tropical Botanic Garden, Zoo Miami, Zoological Society of Florida, Everglades National Park, The Dumond Conservancy, and Biscayne National Park.

1. How would astronauts combat disease, say an accidental infection by a Salmonella culture, given the increased virulence of microbes in space?

2. What kind of work is the crew doing in support of the future missions to Mars?

3. We have a 3D printer in our school. What are the future implications of having a 3D printer on-board? What types of prints will you create?

4. Does experiencing a sunrise/sunset every 90 minutes change your sleep/wake cycles?

5. Do you feel physical exhaustion in space at the end of your work day? How long is your work day?

6. Without gravity, how do plants, such as Arabidopsis, determine orientation germination? Geotropism what do roots do? Do plants on the ISS grow in all different directions?

7. Do you feel stressed on the space station? How do you cope with stress on a space station and does it have more or less of an effect on your immune system in space? Measure muscle conditioning?

8. How are astronaut diets altered to accommodate the changes to the digestive system in microgravity?

9. All work and no play can be boring. What do you do for fun up in space?

10. How do you keep from feeling trapped in the space station?

11. What role did your education play in becoming an astronaut?

12. Which teacher influenced you the most in your life and why?

Upcoming ARISS Contact Schedule

+ A direct contact with high school students at Japanese Broadcasting Corporation (NHK) headquarters in Shibuya, Japan in connection with their “Masakame” event is scheduled for
Sat 2015-01-24 14:21:04 UTC 56 deg.

Japan’s NHK is televising a regular science program “Masakame” for young people. ("Masakame" means Good Heavens.) They are planning to offer a special program around the ARISS contact, which will be video recorded, and Amateur Radio satellites on air on February 28.

The following contacts with RSØISS:

+ A direct contact with students in Kursk, Russia scheduled for Wed 2014-12-24 has been postponed until January.
+ A direct contact with students in Kursk, Russia scheduled for Thu 2014-12-25 has been postponed until January.

No additional information has been provided.

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above information]

Satellite Shorts From All Over

73 on 73 Award #7 - EA4AYW

Congratulations to Jorge Gallardo Sanchez, EA4AYW, for becoming the seventh recipient of the 73 on 73 Award. He submitted a list of 73 stations worked via AO-73 between September 1, 2014 and January 9, 2015.

For more information on the award see
http://amsat-uk.org/funcube/73-on-73-award/

[ANS thanks Paul, N8HM for the above information]

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining

donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
Joe Spier, K6WAO
k6wao at amsat dot org